A Study on the Effects of Indian Business Group Interlock and Size on Firm Performance: Evidence from Bombay Stock Exchange 500

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***Abstract*—While business group emerging market firms are gaining prospective research attentions, our understanding of the business group and performance implications in the lens of social network perspective is limited. This research explores the social network perspective of business group and performance. Through empirically testing business group of Indian firms, we argue that there is a positive impact of within business group board directorate interlock on performance. This research provides empirical evidences to articulate social network perspectives prevail in explaining economic sociological view of emerging multinational business groups. We also assert that business group size positively moderate board directorate interlock and performance relationship. An OLS regression analysis with the data of 405 firms comprising 238 group affiliates with total of 4,666 directors, 2,573 directorate interlock of 1,226 validate our argument.**

***Index Terms*—board interlock, business group, business group size, emerging market, social network theory**

I. Introduction

Research in business group has been employed in diverse academic literatures stemming from international business, strategic management, economics, and sociology literatures that collectively contribute in exploiting manifold features of business operations and performance.

Previous literatures regarding the business groups of emerging multinationals have neglected the significance of network nature. According to [1], a business group is not just any collection of firms somehow bounded together at an intermediate level of binding but a concrete 'network relationship' structure.

The phenomenon of board interlocking directorates of business group [2] articulates strong confidence of emerging market firms, specifically Indian business houses, to derive better strategic formulation and implementation to achieve sound performance. In this paper, we argue that the formation of a dense network composition of social construction within group inter-corporate board directorate ties among group affiliations augment performance advantages. Scrutinizing the business group network within group board of directors' interlock is typically significant to vividly explain performance implications of emerging multinationals through the lens of social network perspective.

The objective of this research is to configure the impact of business group board interlock on performance along with excavating the moderating effect of business group size. Despite depicting the predominance of multinational business houses in its corporate sector, not many rigorous and systematic researches prevail to reveal social network [1] aspects of board directorial interlocks linking effects on firm performance. As the emerging market firms undertake vigorous institutional and economic changes, the significance of board directorate ties among group-affiliated firms continued to persist and retain its relevance [3]. As the presence of emerging market firms dominate in the globally competitive landscape, unraveling the emerging market business groups through social network theory [4] that impact on performance is quite critical.

The paper is structured as follows. In the first section, the discussion of the research context of Indian multinational enterprise and business group consisted of network is depicted. Second, theoretical backgrounds on social network perspectives of business group and performance are established along with the moderating role of business group size to derive hypotheses. Third, data and methodology section is provided describing variables and measurements for the empirical test. Finally, results and discussions to arrive tentative conclusions shape research structure.

II. Research Context

Indian economy has been one of the pioneers of highly competitive achievers in the global arena from the emerging markets. India has gone through economic reforms of deregulations in the last two decades both in terms of allowing inward and outward investments [5]. Such economic reform has rendered upsurge of motivations for Indian firms to participate in the globally competitive games to attain growth. Emerging market firms arrange themselves in the form of business groups

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in order to manage and benefit from institutional voids due to the lack of inefficient formal institutional mechanism [6]. Previous research has shown that business group affiliation reduces not only the risks [7] but also contribute to increase profitability [6], [8] and performance.

Khanna and Rivkin (2001) define business groups as set of firms which are bound together by a constellation of formal and informal ties that are accustomed to taking coordinated action [9]. To further the notion in the lens of social network perspective, scholars like [1] and [10] view business groups as network of firms consisting of multiple linkages between units conceived of as ownership networks as well as information and exchange networks creating value.

Business group activities comprise vast portion of economic activities in many emerging economies [9]. For instance, business groups like renowned corporations such as Tata and Mahindra & Mahindra are extensively found in almost all categories of economic activities in India, with a significant amount of common ownership network usually by a family [6]. Affiliation to business groups and its network provides advantages by providing capabilities as group-affiliated firms can rely on group-wide reputation and resources. Group-affiliated firms that are bound to network also have broader and relatively easy access to capital, both internal and foreign, and are able to access labor and product markets more easily than firms that are not part of any business group [9].

Indian market represent under established market that are often thin, riddled with information gaps, and weakly supported by formal institutions where business group rises to adequately respond to such circumstances [1], [3], [8]. In such a recondite nature of emerging market circumstances, business group network are linked among the affiliations to encourage consummation of mutual exchanges of benefits to possibly seek better performance. Business group ties can reduce cost imperatives by facilitating information flows between the firms [4], [11]-[15]. Social network among business group members emphasizes the social nature of exchange.

III. Theoretical Background

A. Board Interlock within Business Group and Performance

Granovetter (1985) postulated that economic behavior, in general as with human behavior, is socially embedded. Social structure of relationships between actors primarily impact on economic behavior. It is imperative to acknowledge in this notion that individual and firm behaviors depicted as strategies, structures, and performance can be influenced by the social network factors comprising relationships among actors. Granovetter (1985) underscores that economic actions and social structures emphasize concerns regarding embeddedness of economic behavior. With this reasoning articulated, revealing business group affiliation and the interlocking board directorates' networks within the group affecting performance is critical.

The contexts of emerging market where institutional void prevail strengthen the important role of business group as informal network replacing the void within the economical dynamics [16]. Networks of emerging market business groups provide concrete trust among the affiliation to bond together to respond to uncertain environments via sharing resources and knowledge that maximize performance implications. Business groups are deeply woven into the social fabric in most emerging economies [17]. Vast amount of existing literatures find that group affiliation has a robustly beneficial effect on financial performance [6], [9], [18]-[19]. The raison d'être of business groups in the emerging market in this vein is imperative to be understood in the lens of social network perspective.

Business group is not just any collection of firms somehow connected together at an intermediate level of binding [1]. Such a rudimentary conceptualization results in a categorization that is far too broad. The argument furthers to glances business group as social network that emphasize relational factor of interlocking directorship. Board interlock prevails when a person serves on the board of more than one corporation in so doing creates a link of network or interlock between the companies. Although extensive literature on interlocking directorates, only a limited amount of studies delved into within business group interlocks. Fundamentally, within group interlocks provide critical incumbents to control and coordinate affiliations of groups passing on information among group members. Interlocking directorates allow business groups to pool information that provide individual group members to access to a rich information that enhances their strategic decision making and performance.

Furthermore, within group board directorate interlock also provide learning facilitation via assessment of bringing experiences from other companies [20]-[21] to amalgamate strategic decision imperatives. Networks are considered a potential source of learning [22]-[24] that facilitate learning by endorsing efficient tacit knowledge transfer [25] and producing fresh syntheses of accessible information [21], [26]-[27]. Firms often vigorously search for valuable information in and out of their firm boundaries, but it is most likely that prominent source of knowledge that may affect performance implications rise from networks within the firm. In this vein, within group directorate interlock pertain to be quite critical in determining the collection of valuable resources and knowledge learning facilitating performance implications.

Evidence from emerging economies other than the Indian business houses also suggests that director interlocks within the affiliated groups positively influence firm performance. For example, interlocks within Chinese business groups prevail to be an essential information

source relevant to technological advances, market opportunities, and innovative strategies [19]l firms within a group in which any firms are connected to the network will benefit from these interlocks due to tight relational connections that are socially embedded [4] specifically, information passed through the interlocks will continue to multiply through other connections within the web of networks. The values of within group interlocks contribute to the common interests of the business group by facilitating information flows between group members. This relational chain of network improves coordination and control of group members that link to positive performance.

Hypothesis1: Higher the board interlock directorates within the business group, higher the performance.

B. Moderating Effect of Group Size

Firms are able to strategically allocate resource and information through the inter-firm networks of interlock directorates. The extents of sharing the necessary resource from interlock networks of non-affiliated firms are limited by scope of interlock. In the case of business group affiliations, the membership of business groups can contribute to complement the limited scope of interlock networks through formal and informal network [1], [17]. In this vein, the size of group affiliation firms can broaden their social networks with other affiliation firms.

The business group provides the pool of sharing resources and information among group affiliations in context of social network. The size of business group means that the possible scope of networks via informal and formal ties including interlock directorates of affiliation firms thicken the flexibility of strategically pooling and sharing such knowledge of resource and information. In this vein, large business group are more likely to possess various resources and information from their businesses and industries of affiliation firms which in turn can moderate business group interlock and performance relationship.

Hypothesis2. The size of business group will positively moderate the relationship between the interlock directorates within the business group and firm performance.

IV. Data & Methodology

A. Sample and Data

The sample consists of 500 Indian firms of Bombay Stock Exchange within the research period during 2009 to 2010. The collection of within business group interlock data of these firms was rendered at 2008 to investigate the effect of interlock on financial performance. The directorates and financial data are obtained from Prowess database of Center for Monitoring Indian Economy (CMIE) that are widely acknowledged by manifold scholars [2], [28]. Considering the availability of director and financial data of firms, final sample consist of 405 Indian firms comprising of 238 group affiliates and 167 unaffiliated firms. Of the total 4,666 directors, 2,573 interlock of 1,226 directors who sit on another firm's board prevail to exist as empirically testable. The classification of whether the focal firms are group affiliates is followed from Prowess database [2], [28]. The collection of the members within the business group is undertaken along with the incorporation year of each member firms of business group from database.

B. Dependent Variable

In this research, return on assets (ROA) is used as financial performance [2], [8], [29]. ROA is measured by the ratio of profit after tax to total assets. Previous researches of Indian business group performance operationalize ROA as the measurement of group performance. ROA is appropriate for performance of group affiliations because profitability of business group is adequately reflected.

C. Independent Variable

Interlock between the firms by directors [2], [17], [29]-[30] are generated both in terms of within and outside directors. Previous literatures suggest that both within and outside directors are influential [31]. In this research, we measured the board interlock as number of focal firm directors who sit on the board of another firm listed in BSE 500 [2], [12], [30], [32]-[36].

D. Moderating Variable

Business group size is measured as the number of firms within the affiliated group [37]. We collected the list of group affiliation from PROWESS database of CMIE. The largest business group in our sample has 244 firms representing Tata Group while the smallest business has only one firm (Linde Group and Schaeffler Group).

E. Control Variable

Manifold control variables are required in scrutiny regarding effect of board interlock on performance. The control variables for firm performance are firm asset, firm sales [38], quick ratio [39], debt to equity ratio [2], and organizational slack [40]. With the director level, board size [29], [41] is controlled. Group-level variables are also controlled as business group age by the total number of years since the inception of the oldest firm affiliated to a business group [42].

F. Analysis

Multiple regression analysis was used to analyze the effects of board interlock on the financial performance. This study uses Ordinary Least Squared (OLS) multiple regression analysis was used to examine our hypotheses. Multiple regression assumptions are carefully examined before we run the analysis to ensure that the assumptions are not violated. The OLS multiple regression analysis is an appropriate statistical technique to investigate the hypothesized associations and estimate coefficients of dependent and independent variable.

V. Results

Results to test hypotheses of within business group board interlock and business group performance is analyzed through the multiple regression OLS method. The descriptive statistics and correlation coefficients are reported in Model 1. Correlations among independent variables are relatively modest to derive the research design. The results of relationship between business group interlock on performance is depicted in Model 2. Our control variables represent Model 1. In Model 2, we test the relationship of within business group board interlock network effect on performance. Our empirical finding assert that business group is positive and significant at the (beta=0.083, $p<0.1$) supporting hypothesis 1. Model 4 vividly excavate interaction effect of business group size between board directorate interlock and performance relationship to test hypothesis 2. The result indicate positive and significant status (beta=0.216, $p<0.1$) to support hypothesis 2. Multicollinearity is tested through VIF demonstrating lowest 1.09 to 6.80 all under 10 which validates our research design.

VI. Conclusion & Implication

This research explores the social network perspective of business group and performance. Business groups of emerging market are imperative research context in scrutinizing the disclosures of economic sociology notion especially delving into social network perspectives. By specifically excavating the within business group directorate interlock and business group effect on performance, this research provide evidences to articulate social network perspectives prevail in explaining economic sociological view prevailing in the context of emerging multinational business groups. The results indicate that within business group directorate interlock and business group positively affect performance of the Indian business houses through social network perspective. In addition, this study elucidates positive moderating effect of business group size on board interlock and performance relationship.

This research configures within-business group network effect of board interlocks on performance of Indian firms in the lens of social network perspective. Theoretical scrutiny germane to viewing the emerging market business group interlock through social network theory [1][10] is meaningful to illustrate theoretical elaboration and empirical test. This research depict business group in the perspectives of social network theory [1], [4], [43] including the scrutiny of business group size interaction effect.

Looking into the business phenomena, the existence of business group in the emerging market has been well demonstrated in the lens of social network perspective [1], yet the idea has not been vigorously tested in empirical terms especially in the context of Indian market. By using the PROWESS database, which contains vast information data regarding business group and directorates and financial data, it is eligible to explore the social network perspectives of emerging multinational business groups and performance.

Future research can further our findings to elaborate future research prospects. Implications regarding theoretical formulation must be complemented rigorously in order to validate the argument of social network perspectives of business group in the emerging market. Though articulations have been made demonstrating the network presence through the visualization of interlock directorates of within business group, the 'ex ante' of the raison d'être of the within group interlock must be explored to fulfill the details of logic.

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